

Is Homeland Security Too Focused on Now?

The department's projects emphasize near-term results. But some say that could leave the U.S. vulnerable to threats that can't be anticipated

by Rachael King

Editor's note: This is the third in a series of three stories on the challenges and opportunities facing the Homeland Security Dept. as it develops technology aimed at keeping the U.S. safe.

Before 2001, Analogic ([ALOG](#)) was known mainly for the development of high-precision imaging for medical equipment. Then came the September 11 terrorist attacks and the passage of a law requiring all checked baggage to be screened. "It opened up a demand for something we had the technology to supply," says [Jim Green](#), CEO of Analogic, which received its first research and development award from Homeland Security's Transportation Security Administration in 2003.

Two years later, Analogic received additional funding to design an advanced screening system. It was given a tight deadline of one year. The company was already working on the system, which uses the same technology used in cardiac CT scans to take 3D images of a bag's contents. But the grant helped Analogic make its product better. The TSA was so pleased with the fruits of Analogic's efforts that in October, it agreed to buy 12 units for \$7.6 million. As a result, travelers passing through selected airports will be able to pass through security without the hassle of removing laptops from bags.

Such are the fruits of a tendency within Homeland Security to focus research spending on projects that will have a near-term payoff. "DHS, for understandable reasons, is under pressure to deliver working homeland security technologies now," says Kei Koizumi, director of the R&D Budget & Policy Program for the nonprofit [American Association for the Advancement of Science](#). While some companies that work with Homeland Security have become frustrated with what they consider [foot dragging or a lack of support from the government](#) ([BusinessWeek.com](#), 12/18/07), Analogic is a case where the department's focus on the near term produced results.

MOBILIZING MOBILE PHONES

Homeland Security mainly spends on research through its Science & Technology directorate and its Domestic Nuclear Detection Office. Science & Technology has requested a fiscal 2008 budget of \$799.1 million. Of that amount, more than four-fifths, or \$656.5 million, goes to research, development, testing, and evaluation. Over half of that amount goes to what's known as product transition, or research efforts that take less than three years to bear fruit. Another 11% is devoted to research that has a two- to five-year time frame, while 13% applies to basic research, or fundamental science requiring eight years or more of development.

So what exactly is Homeland Security looking into? A considerable chunk of research is aimed at confronting biological, chemical, radiological, and nuclear threats. Clark Ervin, the department's former inspector general, sees nuclear terrorism as the biggest threat facing the U.S. Were a nuclear attack to occur, "the economic impact would be greater [than the effect of September 11] and would bring this country to its knees for a considerable period, for decades," Ervin says.

About \$229 million has been requested to guard against a biological or chemical attack. That includes projects to detect contaminants in the food supply and efforts to develop low-cost sensors for biohazards that might be placed in buildings. Nuclear research is funded by the department's Domestic Nuclear Detection Office, which has a separate budget from the Science & Technology directorate and has requested \$320 million for nuclear research, detection, and operations in 2008.

One of the more recent attempts to guard against biological, chemical, and radiological threats is called CELL-ALL, a near-term effort to include miniaturized sensors in devices as common as cell phones. The idea: Police, firefighters, and other emergency responders—and possibly even the general public—could carry mobile phones that double as biological, chemical, or radiological detectors. In February, the Homeland Security Advanced Research Projects Agency will decide which companies receive the \$3 million to develop an early prototype the agency hopes will be ready for lab testing in a year.

UNIVERSITIES ARE LEFT OUT

Gentag is one of the companies applying for the award. The Washington (D.C.) firm began working on this idea about 10 years ago and has patented the concept of using a cell phone as a reader of sensors that could be inserted in the device and then discarded. "We believe, if the government wanted, we could release this technology within 18 months—all the basic components of the technology are there," says John Peeters, founder of Gentag, which is partnering with other companies to apply for the funding. Gentag could integrate radiological, chemical, or biological sensors into cell phones, he says.

Few would argue the wisdom of girding against a possible biological or nuclear attack. Still, some within research and academic circles voice concern that the focus on the near term diverts the government's attention from the long-haul research that in the past has created innovations such as atomic energy and the mapping of the human genome. "One disappointment for the university community is that little of DHS's money has gone to universities," says Koizumi.

Even less of that funding may be headed toward academia in coming days. The Homeland Security Centers of Excellence is an effort usually led by universities to bring together experts and researchers to conduct multidisciplinary research on homeland security matters. The fiscal 2008 budget is working its way through Congress now and still must be approved by the President, but it appears the budget that includes Centers of Excellence will fall from \$62 million in 2007 to \$49 million in fiscal 2008.

THE KATRINA EFFECT ON PRIORITIES

Some experts also fret that too narrow a research focus could leave the U.S. unprepared for threats that can't be foreseen, as was the case with the shoe bomber. "The concern about research being too applied and focused on current agendas is that we're not therefore planning for the war after next or for the national security horizon after the one that we can see," says John Kao, a consultant and author of the book *Innovation Nation*, which argues that the U.S. is losing its innovation edge. "Your model for what constitutes valuable technology will change a lot depending on what you think the threat is."

In just the few years since the government created the Homeland Security Dept., priorities already have shifted. At first, the main focus was on terrorism, but emergency preparedness took on added urgency after Hurricane Katrina. "There's been a lot of give and take between Congress and Science & Technology about what kinds of threats DHS needs to address," says Koizumi of the American Association for the Advancement of Science.

Homeland Security spokeswoman Amy Kudwa says R&D spending is directed toward the needs deemed most urgent by emergency responders and Homeland Security agencies. "It makes sense that the largest portion of our research and development portfolio would be directed at capability gaps identified by those customers," Kudwa says. She adds that in the next few years, the Science & Technology directorate plans to increase the percentage of its budget allocated to basic research to 20%, from its current 13%. This echoes comments in congressional testimony made last March by Jay Cohen, Under Secretary for Science & Technology at Homeland Security. That would "address long-term research needs in support of DHS mission areas and will provide the nation with an enduring technology base in homeland security," she says.

And none of this is to say that short- to medium-term projects won't have a lasting impact on the country's safety. Consider Project Hydra, designed to create a resilient electric grid that will prevent the cascading effects of power surges on electrical grids. Homeland Security asked American Superconductor ([AMSC](#)) and Consolidated Edison ([ED](#)) to work on technology that would keep power flowing to customers not only in the case of terrorist attacks, but also in the face of accidents and severe weather—and those are bound to happen in any event.

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